

For Mr. Mullen

ANALYSIS OF SUBURBAN PASSENGER DEFICIT

UNDER REDUCED SERVICE

ERIE LACKAWANNA RAILROAD COMPANY

A Report to

State of New Jersey  
State Highway Department  
Division of Railroad Transportation

---

September 1966

L. E. Peabody & Associates  
Transportation Consultants

NJ  
HE  
2583  
A5  
1966  
C.1

NJDOT RESEARCH LIBRARY

L. E. PEABODY & ASSOCIATES  
TRANSPORTATION CONSULTANTS

LEROY E. PEABODY, JR.  
WILLIAM W. WHITEHURST, JR.  
ROBERT L. HINES  
ROBERT W. BURKE  
HARRY W. MILLER

1111 E. STREET, N.W.  
WASHINGTON, D. C. 20004  
(202) 638-6147

September 23, 1966

Mr. H. A. Thomas, Jr.  
Director  
Division of Railroad Transportation  
State Highway Department  
State of New Jersey  
Trenton 25, New Jersey

Dear Sir:

The attached report presents the results of our recent Study of the Erie Lackawanna Railroad Company. This Study was conducted as authorized by your office.

Study  
Objectives

The objectives of the Study are:

1. To test the adequacy of the Wyer, Dick & Co. and Erie Lackawanna Railroad's determination of net savings from the curtailment of suburban passenger service as allowed by the New Jersey Public Utilities Commission.
2. To test the consistency of approach used by Wyer, Dick & Co. to derive the full and the partial abandonment figures and determine what the savings from curtailment of passenger service would be.
3. To determine whether additional passenger service is feasible within the context of schedules proposed by the Railroad.

NJ  
HE  
2583  
A5  
1966  
C.1



### Approach

The State of New Jersey's PUC Docket No. 661-8 decision set the avoidable deficit for Erie Lackawanna passenger operations in New Jersey during 1965 at approximately \$5.5 million. This figure was established partly on the basis of evidence submitted by Wyer, Dick & Co. in the case, partly by evidence submitted by consultants for the Division of Railroad Transportation, and partly on the basis of the deficit accepted by the Railroad in its 1965-66 service contract with the State.

Our analysis involved use of the avoidable approach to determining Erie Lackawanna's savings from reduced suburban passenger service deficit. However, this approach had to be modified to conform to the constraints of the PUC decision and Wyer, Dick's analyses. As the components of the \$5.5 million are not specifically detailed, derivation of the 1965 deficit in some areas required assumptions not entirely within the meaning of "avoidable costs" in its pure sense. Therefore, the figures shown in this report should be considered relevant for one-time use only. That is, they are useful only under the assumptions that (a) \$5.5 million was the 1965 deficit, and (b) all items considered avoidable by Wyer, Dick were in fact avoidable.

### Summary Conclusions

The results of this Study are summarized below:

1. Wyer, Dick & Co. and the Railroad's determination of net savings from the curtailment of suburban passenger service as allowed by the PUC is understated by approximately \$0.7 million.
2. The actual 1965 savings from reduced suburban passenger service within terms as defined by the PUC is \$2.2 million.
3. Had service in 1965 been operated at the reduced level, the avoidable deficit would have been \$5.5 million less \$2.2 million or \$3.3 million.
4. Comparison of the Wyer, Dick derivation of full versus partial abandonment figures reveals a variance in approach with respect to several assumptions. The principal financial impact of these assumption changes occurs in the operating expense areas of Maintenance of Way, Maintenance of Equipment, and Transportation.
5. Opportunities for added service at minimal cost exist during the inter-peak period, principally on the Main Line and the Montclair Branch. These opportunities occur largely as a consequence of idle train and engine crew time. By utilizing available crew time to increase service, and by converting selected deadhead trains to revenue service trains, the Railroad can realize a net increase in revenues of \$103,000. Furthermore, these changes will provide service to an estimated additional 1,167 daily passengers.



Organization  
of Report

These conclusions and the facts upon which they are based are discussed more fully in the attached report, which is organized as follows:

- Chapter I - Overall Picture of Avoidable Deficit under Partial Discontinuance: Discusses the subject service analyzed, describes specific approach and assumptions, presents results by major ICC Account areas, and compares our figures versus Wyer, Dick figures.
- Chapter II - Maintenance of Way Savings: Outlines facilities plan used in developing Maintenance of Way savings, discusses procedures for adjusting normalized maintenance savings, presents results by ICC Account within this area, and compares our figures to Wyer, Dick figures.
- Chapter III - Maintenance of Equipment Savings: Analyzes Wyer savings under total and partial discontinuance, develops and applies consistency and reasonability checks, determines equipment requirements, derives unit savings, presents results by ICC Account and compares to Wyer, Dick figures.
- Chapter IV - Transportation Savings: Analyzes Wyer savings under total and partial discontinuance, identifies personnel associated with reductions in service, summarizes savings by ICC Account and compares to Wyer, Dick figures.

Chapter V - Other Cost Areas: Discusses savings under partial discontinuance for traffic, general expenses, property taxes, payroll taxes, passenger car rents, and miscellaneous rent income.

Chapter VI - Revenue Reductions: Reviews Railroad approach and adjustments made.

Chapter VII- Added Service Opportunities: Examines the feasibility of additional passenger service within the context of proposed schedules.

\* \* \*

We wish to express our appreciation for the assistance of State of New Jersey, Erie Lackawanna, and Wyer, Dick personnel in carrying out this study. Special credit is given to Mr. J. W. Conway of the Erie Lackawanna Staff.

Respectfully submitted,

*L. E. Peabody & Associates*



# ANALYSIS OF SUBURBAN PASSENGER DEFICIT

## UNDER REDUCED SERVICE

### ERIE LACKAWANNA RAILROAD COMPANY

#### TABLE OF CONTENTS

	<u>Page</u>
I <u>OVERALL PICTURE OF AVOIDABLE DEFICIT</u> <u>UNDER PARTIAL DISCONTINUANCE</u>	1-1
PUC Analysis of Passenger Service Deficit	1-1
Curtailment of Services Allowed by PUC Decision	1-3
Analytical Approach	1-4
Results by Major Account Area	1-7
Map	1-8
<u>Exhibits</u>	
I-1    -    Analysis of Avoidable Deficit under Total Discontinuance	
I-2    -    Summary of Savings - 1965	
I-3    -    Savings from Partial Discontinuance - Com- parison of Results Compiled by Wyer and LEP&A	
I-4    -    Erie Lackawanna Commuter Lines in New Jersey and New York, 1965	
II <u>MAINTENANCE OF WAY AND STRUCTURES SAVINGS</u>	2-1
Facilities Plan	2-1
Adjustment of Normalized Maintenance	2-2
Summary Savings by ICC Account	2-4
<u>Exhibits</u>	
II-1    -    Erie Lackawanna Segments of Line - Subur- ban Passenger Area	
II-2    -    Basis of Cost Savings Calculations - Main- tenance of Way Accounts	
II-3    -    Maintenance of Way and Structures Savings - 1965	

TABLE OF CONTENTS  
(Continued)

	<u>Page</u>
III <u>MAINTENANCE OF EQUIPMENT SAVINGS</u>	3-1
Consistency and Reasonability Checks	3-2
Locomotive Savings	3-4
Car Savings	3-5
Other Savings	3-10
Summary Savings by ICC Account	3-11

Exhibits

III-1 - Maintenance of Equipment Savings - 1965

IV <u>TRANSPORTATION SAVINGS</u>	4-1
Personnel Associated with Avoidable Service	4-1
Reasonability and Consistency Checks on Railroad Figures	4-2
Other Savings	4-4
Summary Savings by ICC Account	4-5

Exhibits

IV-1 - Transportation Rail Line Savings - 1965

V <u>SAVINGS IN OTHER COST AREAS</u>	5-1
Traffic	5-1
General	5-1
Miscellaneous: Branch Line Abandonment Savings	5-1
Property Taxes	5-2
Payroll Taxes	5-2
Passenger Car Rents	5-2
Miscellaneous Rent Income	5-2

VI <u>REVENUE LOSS</u>	6-1
Railroad Revenues Approach and Assumptions by Branch	6-1
Analysis of Railroad Revenue Results	6-4

Exhibits

VI-1 - Development of Morris and Essex Branch Revenue Loss under Partial Discontinuance



TABLE OF CONTENTS  
(Continued)

	<u>Page</u>
VII <u>ADDED SERVICE OPPORTUNITIES</u>	7-1
Opportunities to Preserve Service and Revenues	7-1
Utilizing Available Crew Time	7-2
Utilizing Deadhead Moves	7-6
Summary	7-9

I - OVERALL PICTURE OF AVOIDABLE DEFICIT  
UNDER PARTIAL DISCONTINUANCE

Erie Lackawanna Railroad Company operates suburban passenger service in New Jersey over 10 branches serving most of the area of New Jersey north and west of Newark. These are:

- Northern Branch
- Port Jervis via former Erie Main Line
- Bergen County Branch
- Carlton Hill Branch
- Newark Branch
- Greenwood Lake Branch
- Caldwell Branch
- Boonton Branch
- Morris and Essex Branch including Gladstone Branch
- Montclair Branch

The old Lackawanna branches of Montclair, Gladstone, and Morris and Essex are electrified and operated with MU cars. The remaining branches are not electrified and are served with Diesel Propelled (DP) standard coaches.

Most passengers using Erie Lackawanna's suburban lines are commuters to Newark and New York. The principal terminal for New York commuters is Hoboken Station. The major equipment repair and servicing facilities are also located in the Hoboken area.

PUC ANALYSIS OF  
PASSENGER SERVICE DEFICIT

Wyer, Dick & Co. and Erie Lackawanna Railroad Company claimed that \$9,441,457 in increased annual net income would be realized if the railroad were allowed to discontinue all of its suburban passenger service. In analyzing financial data presented in the case, the PUC disallowed savings claimed in the following areas:



Ferry Service

Return on Net Cash

Depreciation

The board also noted that actual savings within New Jersey would be less than those claimed as a consequence of:

Actual vs. Normalized Maintenance of Way and Structures

The interstate portion of the deficit (for service beyond New Jersey into New York)

Savings which could be effected even in the absence of passenger service discontinuance

The board stated that exact figures were not available to it to adjust for savings in these areas. However, as the Railroad had accepted \$5,486,512 in its 1965-66 service contract with the State, the PUC set the deficit at "approximately \$5.5 million".

In Exhibit I-1, we have shown the reconciliation between Wyer's figures and the PUC figure. Included in this analysis is an estimate of the excess of normalized maintenance of way costs over actual maintenance of way costs. The basis of this estimate is explained in Chapter II. As can be seen from the Exhibit, after deducting ferry service, return on net cash, depreciation, and estimated actual vs. normalized maintenance of way expenses, the variance between Wyer's figures and the 1965-66 service contract figure is \$107,476 or less than 2 percent of the service contract amount.

This remaining variance likely lies primarily in: (1) interstate service deficit, and (2) cost items which may be avoided without total passenger service discontinuance.

CURTAILMENT OF SERVICES  
ALLOWED BY PUC DECISION

The PUC decision allows a substantial reduction in Erie Lackawanna's suburban passenger service. The magnitude of this reduction runs from 25 percent to 50 percent depending on the measure of service or plant used, as shown in Table 1 below.

Table 1: Measures of Reduction in Service  
as Allowed by PUC Decision

Item (1)	Number of Units Operated 1965 (2)	Reduction Allowed by PUC (3)	Reduction as Percent of 1965 (4)
1. Route Miles	304	95	31.2 %
2. Train Miles	2,655,803	1,001,403	37.7
<u>Car Miles</u>			
3. MU Car	7,333,512	1,851,505	25.2
4. DP Coach	<u>4,444,572</u>	<u>1,408,562</u>	<u>31.7</u>
5. Total	<u>11,778,084</u>	<u>3,260,067</u>	<u>27.7</u>
6. Locomotive Unit Miles	1,172,916	592,320	50.5
7. Number of Trains per Week	1,646	770	46.8



Viewing the PUC order by branch, the following reductions in number of trains were permitted:

Table 2: Reductions in Train Service  
by Branch

Branch (1)	Number of Trains per Week 1965 (2)	Number of Trains per Week per PUC (3)	Percentage Reduction (4)
1. Northern Branch	30	0	100.0 %
2. Port Jervis via former Erie Main Line	205	88	57.1
3. Bergen County Branch	108	80	25.9
4. Carlton Hill Branch	20	0	100.0
5. Newark Branch	30	0	100.0
6. Greenwood Lake Branch	55	30	45.4
7. Caldwell Branch	20	0	100.0
8. Boonton Branch	95	50	47.4
9. Morris and Essex Branch	810	588	27.4
10. Montclair Branch	<u>273</u>	<u>40</u>	<u>85.4</u>
11. Total	1,646	876	46.8 %
-----			

ANALYTICAL  
APPROACH

Our study of total and partial suburban passenger service discontinuance savings on the Erie Lackawanna was conducted under the following general assumptions:

1. The avoidable deficit figure for partial discontinuance determined here will be for one-time use only. That is, it will apply only to the 1965 deficit and will be used only as a basis for negotiations between the State and the Railroad with respect to that year.
2. The PUC has established \$5.5 million as the avoidable deficit of total suburban New Jersey passenger service for 1965.
3. Both the State and the Railroad have agreed, for purposes of negotiations, to accept this \$5.5 million figure as representing the net avoidable suburban passenger deficit incurred by the Railroad in 1965.
4. The PUC approved of Wyer's approach and resulting figures in all areas where they did not indicate otherwise. In other words, some modifications to the avoidable approach will be allowed for purposes of this 1965 analysis only.
5. In circumstances where Wyer has assumed savings from eliminating facilities and personnel under total discontinuance (even when such eliminations would require separate regulatory body approval), then we have made the same assumption under partial discontinuance as allowed by the PUC, where service involving these same facilities and personnel will no longer be required. This assumption leads to identification of savings on line segments where the PUC has allowed complete cessation of passenger train service.



6. The magnitude of service discontinuance allowed by the PUC is great enough to permit the Railroad to realize significant savings. A large segment of railroad costs are of a fixed and semi-fixed nature. Consequently, when minor reductions in service occur, a railroad typically cannot realize a proportionate reduction in avoidable costs. Here, however, where service is being reduced by roughly a third or better, there is a large enough drop in service level to permit some substantial share of the proportionate avoidable costs to be realized.

Within the framework of these assumptions, we:

- Developed a facilities plan showing, by line segment, the modifications which could be made if suburban passenger service were totally discontinued -- using assumptions as presented by Wyer in his report.
- Built a facilities plan for these same line segments showing modifications which could be made under partial discontinuance as allowed by the PUC.
- Used these facility plans as the basis for determining avoidable costs in such areas as facilities and

track maintenance, nonoperating transportation personnel, property taxes, and facility insurance.

— Calculated service units (car-miles, locomotive unit-miles, number of trains, etc.) under both total discontinuance and partial discontinuance.

— Related the Railroad's proposed savings under total and under partial discontinuance to these service units to appraise consistency of approach.

— Compared railroad savings by area under both total and partial discontinuance to averages, standards, and other measures developed from our experience with other railroads as a test of reasonability.

— Obtained and analyzed selected Erie Lackawanna records as a further check on the Railroad's estimate of savings.

#### RESULTS BY MAJOR ACCOUNT AREA

Financial results for partial discontinuance are shown and compared with results under total discontinuance as adjusted for PUC disallowed items in Exhibit I-2.

The Railroad's estimate of avoidable revenues and expenses are compared with the results of this study in Exhibit I-3. In total our determination of net avoidable deficit shows some \$664,259 greater savings than does the Railroad. The major items of variance and the amounts of variance are:



Maintenance of Way savings	\$181,000
Maintenance of Equipment savings	353,000
Transportation savings	265,000

These variances, as well as the analyses which led to our results in each major account area are discussed in the subsequent chapters of this report.

#### MAP

To assist in visualizing the structure of service under consideration, a schematic map of Erie Lackawanna's suburban area has been included in this chapter as Exhibit I-4.

Analysis of Avoidable Deficit Under Total Discontinuance

Item (1)	Revenues (2)	Costs (3)	Deficit (4)
1. Wyer Total	\$10,134,743	\$19,576,200	\$ 9,441,457
<u>PUC Disallowed Items</u>			
2. Ferry Service	\$ 746,502	\$ 1,521,504	\$ 775,002
3. Return on Net Cash	-	973,093	973,093
4. Depreciation	-	1,180,928	1,180,928
5. Actual v Normalized Maintenance*	-	918,446	918,446
6. Net	\$ 9,388,241	\$14,982,229	\$ 5,593,988
7. PUC Figure	\$ 9,388,241	\$14,874,753	\$ 5,486,512
8. Variance Wyer over/(under) PUC	\$ 0	\$ 107,476	\$ 107,476

\* Based on ratio developed in Chapter II.



Summary of Savings - 1965

Exhibit I-2

<u>Savings Area</u> (1)	<u>Wyer Estimate of Savings under Total Discontinuance 1/</u> (2)	<u>LEP&amp;A Estimate of Savings under Partial Discontinuance</u> (3)
1. Loss in Passenger and Related Revenues	\$ 9,388,241	\$ 728,987
Savings in Operating Expenses		
2. Maintenance of Way and Structures	1,668,727	180,572
3. Maintenance of Equipment (including locomotive and car servicing)	4,378,689	708,176
4. Traffic	80,870	370
5. Transportation	6,926,049	1,859,379
6. General	254,058	0
Miscellaneous		
7. Branch line abandonment savings	(40,624)	(39,432)
8. Local freight overtime savings	-	-
9. Dining car operation	24,576	0
10. Total, Operating Expenses	<u>\$13,292,345</u>	<u>\$ 2,709,065</u>
11. Property Taxes, Savings	949,900	8,305
12. Payroll Taxes, Savings	799,826	165,532
13. Loss of Passenger Car Rents	(27,030)	0
14. Loss of Miscellaneous Rent Income	<u>(32,812)</u>	<u>0</u>
15. Total Decrease in Expenses	<u>\$14,982,229</u>	<u>\$ 2,882,902</u>
16. Total Increase in Income	<u>\$ 5,593,988</u>	<u>\$ 2,153,915</u>
17. Return on Net Cash	<u>\$ -</u>	<u>\$ -</u>
18. Total Estimated Increase in Income	<u>\$ 5,593,988</u>	<u>\$ 2,153,915</u>

1/ Excluding PUC disallowed items (ferry service, return on net cash, depreciation, excess of normalized over actual maintenance).

( ) Indicates reverse entry.

Savings from Partial Discontinuance —  
Comparison of Results Compiled by Wyer and LEP&A

Savings Area (1)	Partial Discontinuance		Variance LEP&A Over/(Under)
	Wyer, Dick Estimate (2)	LEP&A Estimate (3)	Wyer, Dick (4)
1. Loss in Passenger and Related Revenues	\$ 576,142	\$ 728,987	\$ 152,845
2. Savings in Operating Expenses			
a. M/W&S	-	180,572	180,572
b. M/E (Incl. Loco. and Car. Serv.)	355,111	708,176	353,065
c. Traffic	-	370	370
d. Transportation	1,594,205	1,859,379	265,174
e. General	-	-	-
f. Miscellaneous			
Br.Line Aban. Savings	-	(39,432)	(39,432)
Dining Car Operation	-	-	-
3. Total Operating Expenses	\$1,949,316	\$2,709,065	\$ 759,749
4. Property Taxes, Savings	-	\$ 8,305	\$ 8,305
5. Payroll Taxes, Savings	\$ 116,482	165,532	49,050
6. Loss of Passenger Car Rents	-	-	-
7. Loss of Misc. Rent Income	-	-	-
8. Total Decrease in Expenses	\$2,065,798	\$2,882,902	\$ 817,104
9. Total Increase in Income	\$1,489,656	\$2,153,915	\$ 664,259
10. Return on Net Cash	-	-	-
11. Total Estimated Increase in Income	<u>\$1,489,656</u>	<u>\$2,153,915</u>	<u>\$ 664,259</u>



# ERIE-LACKAWANNA COMMUTER LINES IN NEW JERSEY AND NEW YORK, 1965

(Schematic Map-Not Drawn To Scale)

## TRACK REDUCTIONS PROPOSED FOR COMPLETE DISCONTINUANCE

- A - Four to double
- B - Four to Single
- C - Triple to Single
- D - Double to Single
- E - Eliminate existing track

Lines on which PUC Order permits complete passenger discontinuance

Electrified Lines Multiple Unit Car Operation



## II - MAINTENANCE OF WAY AND STRUCTURES SAVINGS

According to the Wyer Report (PUC Docket 661-8, Exhibit RR 30), Erie Lackawanna Railroad Company could avoid \$3,023,439 in operating expenses associated with Maintenance of Way and Structures if total suburban rail passenger service were discontinued in its suburban area. These savings would result primarily from track, signals, stations, and other facilities to be eliminated and from downgrading of maintenance for freight-only operations.

According to figures supplied the State of New Jersey, the Railroad would avoid no operating expenses associated with Maintenance of Way and Structures under partial suburban passenger rail service discontinuance as allowed by the PUC decision.

The Railroad and its consultant, Wyer, Dick & Co., assert that savings in this area would require separate PUC authorization to close stations and eliminate freight service in areas where service is being discontinued under the PUC order. However, in its application for total suburban passenger service discontinuance, the Railroad has assumed that these authorizations would be forthcoming as they have claimed the resulting saving. In other words, the approach taken under these two situations is not consistent.

### FACILITIES PLAN

We have applied the same assumption as used by Erie Lackawanna under total discontinuance to the situation of partial discontinuance. Specifically, we identified the facilities associated with each line segment of the suburban passenger area.



In so doing, we used the same line segment breakdown as described by Wyer in his Report. The breakdown is shown in Exhibit II-1 of this chapter. Under such a line segment categorization, service over the following segments would be completely eliminated in accordance with the PUC decision.

Segment 3	West End Tower to Nyack (Northern Branch)
Segment 6	Rutherford Junction to Carlton Hill (Carlton Hill Branch)
Segment 20	Great Notch to Essex Fells (Caldwell Branch)
Segment 22	Mountain View to Midvale (Greenwood Lake Branch)
Segment 24	NY & GL Junction to Paterson Junction (Newark Branch)
Segment 39	Netcong to Straders (Sussex Branch)
Segment 40	Netcong to Washington

Savings in track and roadway maintenance, bridges, trestles and culverts, stations and office buildings, and signals and interlockers were developed for each of these segments.

For other ICC account expenses within the Maintenance of Way and Structures area, savings were calculated using methods analogous to those applied by Wyer under total discontinuance. The basis of cost savings is shown and compared to Wyer's method for each account in Exhibit II-2.

#### ADJUSTMENT OF NORMALIZED MAINTENANCE

Mr. Wyer, in his testimony before the PUC stated that the Railroad's avoidable costs for many items in the Maintenance of Way and Structures account had been developed on a normalized basis.

"The avoidable costs of many of the items making up Maintenance of Way and Structures expenses were developed on a normalized basis. Because of the cyclical nature of many of the Maintenance of Way expenses it is unrealistic, when developing expenses over a short period of time, to use actual expenses. To do so can either understate or overstate the expenses in a given year or in fact over a period of several years."

Several parties have taken issue with the Maintenance of Way and Structures figures Wyer presented - not so much with the concept of normalized maintenance as opposed to actual maintenance, but rather with the high level of normalized maintenance which Wyer postulates.

In the PUC decision and order appears the statement:

"The board notes that the expense item for Maintenance of Way was developed by Mr. Wyer on a normalized basis which produced figures frequently markedly different from the actual expenses allocated to passenger service for the years in question. For example, Schedule 3 of Exhibit RR-30 shows savings in Maintenance of Way and Structures of \$3,135,984 attributed to New Jersey suburban passenger service. Yet the Railroad's annual report to the Interstate Commerce Commission for 1965 shows allocation in this account of \$3,647,417 to passenger expense for the entire system."

Under ICC Finance Docket No. 21510 Clarence E. Jackman, Assistant Vice President - Engineering for the Chesapeake and Ohio and Baltimore and Ohio, testified on behalf of Norfolk and Western. He developed a normalized maintenance program for Erie Lackawanna and compared it to Wyer's estimate.

"I have reviewed the working papers underlying witness Wyer's Exhibit WW-3 which covers his claimed savings in the event Erie Lackawanna's commuter operations are discontinued. Mr. Wyer claims normalized maintenance savings of \$3,023,439 in his commuter study. Had Mr. Wyer employed the method I use in determining normalized maintenance, his claimed maintenance saving in his commuter study would have been \$2,525,000, a reduction of \$498,439. This is because Mr. Wyer's methods produce a higher normalized maintenance expense than my method. For example Mr. Wyer uses a 25-year tie life for main tracks as compared to my use of a 40-year tie life."



Further, in our inspection of Erie Lackawanna properties, we visited stations for which the normalized annual maintenance charges listed by Wyer appeared rather high. For example, Wyer showed \$1,165 in normalized annual maintenance for the Caldwell Station on the Caldwell Branch. Yet the Railroad has sold the Caldwell Station to an outside party and Erie Lackawanna does not maintain this station at all.

In summary then, we concluded that some adjustment should be made to the Maintenance of Way and Structures savings calculated under partial discontinuance.

Actual - Normalized  
Maintenance Ratio

A ratio for reducing normalized Maintenance of Way savings to reflect the excess of normalized over actual expenses was developed from data in Jackman's testimony. Using the relationship between Wyer's and Jackman's normalized maintenance for the suburban area and the relationship between actual 1965 system maintenance and Jackman's normalized system maintenance, we calculated a composite percentage representing the ratio of actual maintenance in the suburban area to Wyer's normalized maintenance for this area. The percent figure calculated, 64.5 percent, was then applied to all partial discontinuance Maintenance of Way and Structures savings derived from Wyer's work papers to get an estimate of actual savings.

SUMMARY SAVINGS  
BY ICC ACCOUNT

Maintenance of Way and Structures savings by account under partial discontinuance are shown, along with savings as claimed by Erie Lackawanna under total discontinuance, in Exhibit II-3.

ERIE LACKAWANNA SEGMENTS OF LINE  
SUBURBAN PASSENGER SERVICE AREA

Segment Number

- 1 Hoboken to Grove Street Tower (passenger)
- 2 Grove Street Tower to West End Tower

Northern Branch

- 3 West End Tower to Nyack

Erie Main Line to Carlton Hill

- 4 West End Tower to N.J. and N.Y. Junction
- 5 N.J. and N.Y. Junction to Rutherford Junction
- 6 Rutherford Junction to Carlton Hill

Bergen County and Erie Main Line  
to Port Jervis

- 7 Rutherford Junction to Passaic Junction (NYS&W)
- 8 Passaic Junction to Ridgewood Junction
- 9 Ridgewood Junction to Waldwick
- 10 Waldwick to Suffern
- 11 Suffern to Newburgh Junction
- 12 Newburgh Junction to Monroe (passenger)
- 13 Monroe to Howells Junction (passenger)
- 14 Howells Junction to Port Jervis

Boonton Line to Ridgewood Junction

- 15 West End Tower to Paterson Junction
- 16 Paterson Junction to Ridgewood Junction

Greenwood Lake and Boonton Line  
to Denville

- 17 West End Tower to NY & GL Junction
- 18 NY & GL Junction to Forest Hill
- 19 Forest Hill to Great Notch
- 20 Great Notch to Essex Fells
- 21 Great Notch to Mountain View
- 22 Mountain View to Midvale
- 23 Mountain View to Denville

ERIE LACKAWANNA SEGMENTS OF LINE  
SUBURBAN PASSENGER SERVICE AREA

Segment Number

Newark Branch

24 NY & GL Junction to Paterson Junction

Morris & Essex Branch

25 West End Tower to Roseville  
26 Roseville to Montclair  
27 Roseville to South Orange  
28 South Orange to Millburn  
29 Millburn to Summit  
30 Summit to Berkeley Heights  
31 Berkeley Heights to Sterling  
32 Sterling to Far Hills  
33 Far Hills to Gladstone  
34 Summit to Morristown  
35 Morristown to Denville  
36 Denville to Dover

West of Dover

37 Dover to Port Morris  
38 Port Morris to Netcong  
39 Netcong to Straders  
40 Netcong to Washington



BASIS OF COST SAVINGS CALCULATIONS

Maintenance of Way Accounts

(201) Superintendence:

Total Discontinuance - Wyer determined avoidable positions.

Partial Discontinuance - A similar analysis showed no avoidable positions.

(202) Roadway Maintenance:

Total Discontinuance - Wyer determined normalized cost for miles of road abandoned.

Partial Discontinuance - Savings were developed by line segment.

(206) Tunnels and Subways:

Total Discontinuance - Wyer determined normalized cost per foot for feet of tunnels retired.

Partial Discontinuance - No avoidable tunnels.

(208) Bridges, Trestles and Culverts:

Total Discontinuance - Wyer determined normalized cost for structures retired.

Partial Discontinuance - Savings were developed by line segment.

(212 - 220) Track Accounts:

Total Discontinuance - Wyer determined normalized cost for track and turnouts retired or downgraded.

Partial Discontinuance - Savings were developed by line segment.

(221) Fences, Snowsheds and Signs:

Total Discontinuance - Wyer determined savings in this account as 0.536 percent of savings in Accounts 212 - 220.

Partial Discontinuance - Savings were developed by the same method.

(227) Stations and Other Buildings:

Total Discontinuance - Wyer determined normalized cost for stations.

Partial Discontinuance - Savings were developed by line segment.

Maintenance of Way Accounts - (Cont'd)

(235) Shops and Enginehouses:

Total Discontinuance - Wyer determined normalized cost for facilities to be retired.

Partial discontinuance - No avoidable car repair and servicing facilities.

(249) Signals and Interlockers:

Total Discontinuance - Wyer determined normalized cost for towers and signals to be eliminated.

Partial Discontinuance - Savings were developed by line segment.

(257) Power Transmission Systems:

Total Discontinuance - Wyer determined normalized cost for substations, tie stations, and the catenary system.

Partial Discontinuance - No savings.

(269) Roadway Machines:

Total Discontinuance - Wyer determined savings in this account as 7.173 percent of Accounts 202 through 221.

Partial Discontinuance - Savings were developed by the same method.

(271) Small Tools and Supplies:

Total Discontinuance - Wyer determined savings in this account as 7.122 percent of Accounts 202 through 221.

Partial Discontinuance - Savings were developed by the same method.

(272) Removing Snow, Ice, and Sand:

Total Discontinuance - Wyer developed normalized cost per turnout.

Partial Discontinuance - Savings were developed by line segment.

(274) Injuries to Persons:

Total Discontinuance - Wyer determined savings in this account as 1.616 percent of Accounts 202 through 282, excluding Accounts 266, and 274 through 280.

Partial Discontinuance - Savings were developed by the same method.

Maintenance of Way Accounts - (Cont'd)

(275) Insurance:

Total Discontinuance - Wyer determined the premium applicable to individual avoidable structures.

Partial Discontinuance - No savings.

(276) Stationery and Printing:

Total Discontinuance - Wyer determined savings in this account as 0.130 percent of Accounts 202 through 282 excluding Accounts 266, and 274 through 280.

Partial Discontinuance - Savings were developed by the same method.

(277) Employee Health and Welfare Benefits:

Total Discontinuance - Wyer determined savings in this account as 4.085 percent of the labor portion of all Maintenance of Way expenses.

(282) Other Expenses:

Total Discontinuance - Wyer determined savings in this account as 0.208 percent of Accounts 202 through 221.

Partial Discontinuance - Savings were developed by the same method.



Maintenance of Way and Structures Savings - 1965

ICC Acct #	Savings Area	Wyer Estimate of Normalized Savings Under Total Discontinuance <sup>1/</sup>	LEP&A Estimate of Savings Under Partial Discontinuance	
			Unadjusted	Adjusted For Ratio of Actual To Normalized Maintenance
(1)	(2)	(3)	(4)	(5)
201	Superintendence	\$ 120,844	0	0
202	Roadway Maintenance	4,694	\$ 2,721	\$ 1,755
206	Tunnels & Subways	4,479	0	0
208	Bridges, Trestles & Culverts	74,423	12,954	8,355
212-220	Track Accounts	1,007,324	138,681	89,449
	Added Costs	( 8,116)	0	0
	Net, Track Accounts	999,208	138,681	89,449
221	Fences, Snowsheds, & Signs	5,358	743	479
227	Stations & Other Buildings	242,497	23,353	15,063
	Added Maintenance	( 5,237)	0	0
	Net, Stations & Other Buildings	237,260	23,353	15,063
231	Water Stations	-	-	-
233	Fuel Stations	-	-	-
235	Shops and Enginehouses			
	Car Repair and Servicing	26,186	0	0
	Locomotive Repair & Servicing	32,839	0	0
	Net, Shops & Enginehouses Accounts	59,025	0	0
241	Wharves and Docks	-	-	-
249	Signals and Interlockers	187,068	17,680	11,404
257	Power Transmission System	183,958	0	0
	Other Than Train Power	4,568	0	0
	Net, Power Transmission System Accounts	188,526	0	0
266	Road Property, Depreciation	436,266	-	-
269	Roadway Machines	78,054	11,125	7,176
271	Small Tools and Supplies	77,499	11,046	7,125
272	Removing Snow, Ice, and Sand	395,496	49,072	31,652
274	Injuries to Persons	37,386	4,326	2,790
275	Insurance	42,945	0	0
276	Stationery and Printing	3,008	348	224
277	Employees Health and Welfare Benefits	69,637	7,584	4,892
281	Right-of-Way Expenses	-	-	-
282	Other Expenses	2,263	323	203
Total Maintenance of Way		\$3,023,439	\$ 279,956	\$ 180,572

<sup>1/</sup> Excludes Ferry Operations.

( ) Indicates Reverse Entry

### III - MAINTENANCE OF EQUIPMENT SAVINGS

Savings in operating expenses for Maintenance of Equipment (including locomotive and car servicing) under total discontinuance are shown by Wyer to be \$5,123,351. This includes \$744,022 for depreciation which, when deducted leaves \$4,379,329.

Under partial discontinuance Wyer and the Railroad show the following savings.

Table 1: Railroad Estimate of Savings Under  
Partial Discontinuance

Item (1)	Amount (2)
1. Car Repairs and Servicing*	\$ 51,675
2. Locomotive Repairs and Servicing*	207,149
3. Depreciation - Car	6,745
4. Depreciation - Locomotive	<u>89,542</u>
5. Total	\$ 355,111
6. Less Depreciation	<u>96,287</u>
7. Net Savings	<u><u>\$ 258,824</u></u>

\* - Excludes Account 532 - Payroll Tax

After depreciation, savings under partial discontinuance are

$$\frac{\$ 258,824}{\$ 4,379,329} = 5.9 \text{ Percent}$$

of savings under total discontinuance. At the same time, locomotive miles will be reduced by 50.5 percent, car-miles will be reduced by 27.7 percent, and the number of trains will be reduced by 46.8 percent. In light of these significant reductions in service and equipment operation, the railroad figures appear seriously understated - even when one considers that 30 percent of a man is not an avoidable cost.

Consequently we have analyzed the reasonability and consistency of the Railroad's two sets of figures.

CONSISTENCY AND  
REASONABILITY CHECKS

This involved determining units saved and savings per unit. In the Maintenance of Equipment area units are principally pieces of equipment and number of miles operated. Erie Lackawanna uses both locomotives with standard (DP) coaches and MU cars in passenger service. Therefore, Erie Lackawanna units are:

Number of Locomotives  
Number of DP coaches  
Number of MU cars  
Number of Locomotive Unit Miles  
Number of DP Coach Car Miles  
Number of MU Car Miles

Equipment  
Saved

Equipment savings were derived from examination of peak requirements. We examined Erie Lackawanna's Hoboken Terminal Track Assignment sheet to develop present (i.e. pre PUC decision) equipment cycling, and hence peak equipment requirements. Subtracting peak requirements from the fleet size for each class of equipment as supplied by Wyer working papers yielded the number of spares for each class or the shopping margin percentage.

Examination of proposed schedules and equipment cycling of trains to be discontinued provided both the peak requirements and equipment savings by class of equipment. Applying the shopping margin developed previously yielded the number of units of each class of equipment which could be eliminated under partial discontinuance.

Mileage  
Reduction

Mileage operated by class of equipment in 1965 was calculated



from Erie Lackawanna timetables. The figures developed were compared with mileage figures used by Wyer (October 1965 expanded to an annual basis). In no case did our calculated figure vary from Wyer's by over two percent.

Reduction in mileage as a consequence of partial discontinuance was determined from trains to be eliminated and adjusted for added cars on remaining trains. Where railroad estimates were available (locomotive unit-miles and MU car-miles), they were checked against our calculations.

Savings  
Per Unit

Wyer and the Railroad have estimated locomotive repairs and servicing and car repairs and servicing savings under total and partial discontinuance. In both cases a portion of the savings is attributable to reductions in pieces of equipment and a portion is attributable to reduction in mileage. However, as savings are shown in total and not broken down into time and mileage components, it is difficult to judge the consistency of total discontinuance versus partial discontinuance savings. Consequently, using data from other railroads, we have estimated the time versus mileage proportions of equipment costs for Erie Lackawanna's level of service and used these proportions to check partial versus total discontinuance figures.

Avoidable  
Positions

As a further check on the Railroad's consistency of approach we compared positions to be eliminated under total discontinuance with those to be eliminated under partial discontinuance. In so doing, we found several repair and servicing positions at outlying points which would be eliminated under total discontinuance and

to which passenger service would no longer be operated under the PUC order. These locations are Nyack and Midvale.

LOCOMOTIVE  
SAVINGS

Under total discontinuance, the Railroad shows \$1,505,280 in locomotive repair and servicing costs for labor and materials, excluding stores expenses, vacations, holidays, and other labor fringes, and power plant charges. Under partial discontinuance, the Railroad shows \$201,890 in labor and material savings before overheads and fringes.

The Railroad estimates that there would be a reduction of 583,549 locomotive unit-miles under partial discontinuance and that 12 locomotive units could be saved. Our calculation of mileage and equipment savings under partial discontinuance shows that, while mileage savings are accurate, the equipment savings appear to be understated. Nevertheless, we accept their figures for locomotives. Likewise we accept the Railroad's labor savings dollars (excluding fringes) for locomotives under partial discontinuance, although they are quite low in proportion to savings under total discontinuance.

To estimate material savings, the Railroad used the Jersey City material/labor ratio developed in the total discontinuance study. The units to be eliminated under partial discontinuance are MPSA and MPSE 1500 and 1600 horsepower locomotives. Erie Lackawanna's Diesel Report shows labor and material charges for these units at the Jersey City locomotive shop. Consequently the material/labor ratio can be developed for these specific classes of units. Using the weighted average of the MPSA and the MPSE material/labor ratios, we calculated a composite ratio to apply to labor savings. This calculation yielded material savings for

locomotives under partial discontinuance of \$119,991 as contrasted to the Railroad's estimate of \$83,991.

Revised locomotive repair and servicing savings under partial discontinuance are \$248,737.

CAR  
SAVINGS

Under total discontinuance, the Railroad shows \$2,185,920 in car repair and servicing costs for labor and materials, excluding stores expense, vacations, holidays, and other labor fringes, and power plant charges. This total was not separated into DP coach and MU car savings.

Under partial discontinuance, the Railroad shows \$50,039 in labor and material savings before overheads and fringes. The Railroad estimates it can eliminate 25 DP coaches but no MU cars under partial discontinuance. Therefore, the savings shown should be principally, if not entirely, related to DP coaches.

Comparison of dollars saved under partial versus total discontinuance with the accompanying reductions in service as shown in Table 2 below raises serious questions about the adequacy of savings under partial discontinuance.

Table 2: Dollars and Units Saved: Partial  
Versus Total Discontinuance

Item	Reduction Under Total Discontinuance	Reduction Under Partial Discontinuance	Reduction Under Partial As A Percent of Reduc- tion Under Total
(1)	(2)	(3)	(4)
1. Car Repairs and Servic- ing Costs	\$ 2,185,920	\$ 50,039	2.3 %
2. DP Coach Car- miles	4,444,572	1,408,562	31.7
3. MU Car-Miles	7,333,512	1,851,505	25.2
4. DP Coach Units	215	25	11.6
5. MU Car-Units	248	0	0
-----	-----	-----	-----



Further, the estimate of only 25 DP coach units and no MU car units to be eliminated appears low in light of the present versus proposed schedules.

DP Coach Equipment  
Requirements

Based on the Hoboken Track Assignments, 187 DP coaches presently are required for the morning peak and 184 for the evening peak. The total fleet size is 215, and the shopping margin is 11.4 percent spares.

Assuming that the consists of remaining trains will be unchanged, 139 DP coaches are required for the morning peak and 136 DP coaches are required for the evening peak after trains to be discontinued are eliminated from the timetables. This yields a saving before shopping margin of 48 DP coaches at both the morning and evening peak - rather than 25 as shown by the Railroad.

The Railroad has estimated that it must add 7 cars on morning peak trains and 11 cars on evening peak trains to accommodate riders from discontinued trains who will switch to ride remaining trains. However, comparison of number of cars and seating capacity on present trains with October 1965 patronage by train shows that sufficient excess capacity exists on the remaining trains to more than account for the extra seats which the Railroad will add cars to supply.

This raises the question of how present excess capacity should be treated in determining avoidable equipment. Since the add-on cars will not be required to handle remaining passengers, should they be counted as avoidable? Or, should they be counted as non-avoidable since in theory excess capacity cars can be cut out now to achieve savings without discontinuance? We have assumed that avoidable savings should reflect constant passenger

load factors and not be credited with potential efficiencies in present operations.

Therefore, deducting add-on cars from the previously determined savings results in 41 (48-7) avoidable DP coaches in the morning peak and 37 (48-11) avoidable DP coaches in the evening peak. Taking the smaller of the two numbers (37) and applying the shopping margin ( $37 \times 11.4\% = 4$ ) yields 41 (37+4) avoidable DP coaches.

#### MU Car Equipment Requirements

Peak requirements were developed for MU cars in the same manner as for DP coaches. The larger peak requirement was 216 units which, when compared with the fleet size of 248 units, leaves 14.8 percent spares. Calculation of peak requirements under partial discontinuance showed that 6 MU cars could be eliminated.

The Railroad has added cars to trains remaining after service curtailment to accommodate passengers who will switch to these trains and be retained as riders. Once again a check of present load factors showed sufficient capacity to handle passengers without adding cars to remaining trains. However, as with DP coaches, we decided to assume constant load factors. As a result no MU cars can be eliminated under partial discontinuance, although there will be a significant drop in MU car-miles.

#### Car Time and Mileage Savings

The first step in estimating MU and DP coach time and mileage savings is to determine which car repair and servicing savings under total discontinuance are assignable to MU's and which to DP coaches.

Overall savings were assigned based on analysis by location. All car savings from the Hoboken MU shed and Morris and Essex outlying points were assigned to MU's. All car savings from the Jersey City car shop, Washington, Port Jervis, and Jersey City outlying points of Waldwick, Suffern, Midvale, and Nyack were assigned to DP coaches. Savings for Hoboken Terminal were apportioned among MU's and DP's based on the distribution of actual charges from the Suburban Shop Study October 1965. Power plant charges were not included. The resulting figures showed labor and material costs excluding fringes.

Table 3: Car Repair and Servicing Costs  
By Class of Equipment

Equipment (1)	Labor (Excl. Vac. & Hol. Incl. Shop) (2)	Material (3)	Total (4)
1. MU Car	\$ 673,966	\$ 196,672	\$ 870,638
2. DP Coach	937,214	378,068	1,315,282

-----

MU Time/Mileage Apportionment: Annual mileage per car for MU's under present service is approximately 30,000 miles. At this level of service mileage costs should account for somewhat over 50 percent of total time plus mileage costs. Assuming a 50-50 time-mileage split of costs gives costs per unit as shown in Table 4 below.

Table 4: MU Time and Mileage  
Unit Costs

Item (1)	Costs (2)	Number of Units (3)	Cost Per Unit (4)
1. Total	\$ 870,638	-	-
2. Time Portion (50%)	435,319	248	\$1755/car/year
3. Mileage Portion (50%)	435,319	7,333,512 miles	\$0.0594/car/mile



Applying these unit costs to the equipment and mileage reductions under partial discontinuance we derive projected savings as follows:

Table 5: MU Savings Under Partial Discontinuance

Item (1)	Number of Units (2)	Savings/Unit (3)	Saving (4)
1. Time Maintenance	0	\$ 1755	0
2. Mileage Maintenance	1,851,505	\$ 0.0594	\$ 109,979
3. Sub-Total			\$ 109,979
4. Vacation and Holiday @ 7.12% (9.201% x 77.4% labor = 7.12%)			7,830
5. Total			\$ 117,809

DP Coach Time/Mileage Apportionment: Annual mileage per car for DP's under present service is slightly over 20,000 miles. At this level of service, time costs should account for approximately 75 percent of total time plus mileage costs. Assuming a 75-25 time-mileage split of costs gives costs per unit as shown in Table 6 below.

Table 6: DP Coach Time and Mileage Unit Costs

Item (1)	Costs (2)	Number of Units (3)	Cost per Unit (4)
1. Total	\$1,315,282	-	-
2. Time Portion(75%)	986,462	215 units	\$ 4,583/car/year
3. Mileage Portion(25%)	328,820	4,444,572	\$ 0.0740/car/mile

Applying these unit costs to the equipment and mileage reductions under partial discontinuance we derive projected savings as follows:

Table 7: DP Coach Savings Under  
Partial Discontinuance

<u>Item</u> (1)	<u>Number of Units</u> (2)	<u>Savings/Unit</u> (3)	<u>Savings</u> (4)
1. Time Maintenance	41	\$ 4,588	\$ 188,108
2. Mileage Maintenance	1,408,562	\$ 0.0740	104,234
3. Sub-Total			<u>\$ 292,342</u>
4. Vacation and Holiday @ 6.55% (9.201% x 71.2% labor = 6.55%)			19,148
5. Total			<u>\$ 311,490</u>

Total Car  
Savings

In combination, MU car and DP coach repair and servicing savings amount to \$402,321 before vacation and holiday allowance or \$429,299 after these allowances. Referring to Table 2, under total discontinuance the Railroad showed \$2,185,920 in car repairs and servicing costs before fringes. Therefore, revised savings in this area under partial discontinuance are 18.4 percent ( $\$402,321 \div \$2,185,920$ ) of those under total discontinuance - a figure much more in keeping with service reductions than Wyer's 2.3 percent.

OTHER  
SAVINGS

Other savings within the Maintenance of Equipment area were handled analogously to the Railroads' development as follows - (percentages used by Wyer were developed by ascertaining the system ratio of the particular account to directly allocable accounts):

(301) Superintendence: Wyer determined avoidable positions under total discontinuance. We found none avoidable under partial discontinuance.

(326) Work Equipment Repairs: Under total discontinuance, Wyer calculated savings in this account as 2.162 percent of accounts 202-282 excluding 266, and 274 - 280. This same procedure was followed under partial discontinuance to arrive at savings of \$5,788.

(332) Injuries to Persons: Under total discontinuance Wyer calculated savings in this account as 0.789 percent of direct costs in Accounts 302 through 326 inclusive but excluding Account 305. This same procedure was followed under partial discontinuance to arrive at savings of \$5,395.

(334) Stationery and Printing: Under total discontinuance, Wyer calculated savings in this account as 0.038 percent of direct costs in Accounts 302 through 326 inclusive but excluding Account 305. This same procedure was followed under partial discontinuance to arrive at savings of \$260.

(335) Employees Health and Welfare Benefits: Under total discontinuance, Wyer calculated savings in this account as 4.085 percent of the labor portion of Maintenance of Equipment expenses. This same procedure was followed under partial discontinuance to arrive at savings of \$18,697.

SUMMARY SAVINGS  
BY ICC ACCOUNT

Maintenance of Equipment savings by account under partial discontinuance are shown, along with savings claimed by Erie Lackawanna under total discontinuance in Exhibit III-1.

In total the partial discontinuance savings amount to \$708,176, as opposed to the \$258,824 shown by the Railroad. Re-iterating the major reasons for the Railroad's understatement of partial discontinuance savings, they are:



1. Avoidable personnel at outlying stations not included,
2. Insufficient allowance for avoidable pieces of equipment - cars,
3. Insufficient allowance for savings per unit eliminated - cars and car-miles,
4. Failure to apportion to some accounts savings in a manner consistent with that followed under total discontinuance (Work Equipment, Injuries to Persons, Stationery and Printing).

Maintenance of Equipment Savings - 1965

ICC Acct. #	Savings Area	Wyer Estimate of Savings under Total Discontinuance 1/	LEP&A Estimate of Savings under Partial Discontinuance
(1)	(2)	(3)	(4)
301	Superintendence	\$ 21,133	\$ 0
305	Shop and Power Plant Machinery Depreciation	(640)	-
311	Locomotive Repairs and Servicing includes 394 - Fueling Labor, 397 - water, 398 - lubrication, 399 - sand, other, 400 - enginehouse expenses, and 302 - shop machinery, 304 - power plant changes	1,726,242	248,737
317	Car Repairs and Servicing includes 402 - train supplies and expenses and 302 shop machinery, 304 - power plant charges	2,570,172	429,299
	Added cost - operating Power Plant charged to locomotive and car	(142,674)	0
323	Floating Equipment Repairs	-	-
326	Work Equipment Repairs	50,014	5,788
331	Equipment Depreciation		
	Locomotives	344,832	-
	Passenger Cars	377,021	-
	Floating Equipment	-	-
	Work equipment	22,809	-
	Total Acct 331	744,662	-
332	Injuries to Persons	33,167	5,395
333	Insurance	-	-
334	Stationery and Printing	1,596	260
335	Employees Health and Welfare Benefits (4.085%)	119,679	18,697
	Total Maintenance of Equipment	<u>\$5,123,351</u>	<u>\$708,176</u>

1/ Excludes Ferry Operations.

#### IV - TRANSPORTATION SAVINGS

Savings in operating expenses for transportation under total discontinuance are estimated by Wyer and the Railroad at \$6,926,049, excluding ferry operations. According to figures supplied the State of New Jersey, the Railroad's avoidable expenses in this area under partial discontinuance would be \$1,594,205. This figure consists of the following items:

Table 1: Railroad Estimate of Savings  
under Partial Discontinuance

<u>Item</u> (1)	<u>Amount</u> (2)
Engine crews*	\$ 557,151
Train crews*	744,718
Switching*	33,977
Power	75,687
Fuel	100,572
Towermen*	<u>82,100</u>
Total	<u>\$1,594,205</u>

\* Excludes payroll tax.

-----

Not included in these savings are non-operating personnel on line segments where service will be completely eliminated under partial discontinuance. Also not included are savings from accounts where expense reductions were calculated based on a percent of direct cost.

#### PERSONNEL ASSOCIATED WITH AVOIDABLE SERVICE

Personnel who are related directly to a line segment or segments are: station employees, signal and interlocker operators,



crossing watchmen, and drawbridge operators. Using the same form of facility plan as developed for use in calculating Maintenance of Way savings, we determined personnel who had been eliminated under total discontinuance and were on line segments where there would be no passenger service under partial discontinuance.

#### REASONABILITY AND CONSISTENCY CHECKS ON RAILROAD FIGURES

Railroad savings under partial discontinuance for engine crews, train crews, switching, power, fuel, and towermen were checked for reasonability and for consistency with analogous figures calculated under total discontinuance.

##### Train and Engine Crews

The Railroad determined train and engine crew requirements for Erie and for Lackawanna assignments under partial discontinuance. These assignments were costed out by appropriate rates to derive the cost of reduced service. Subtracting this cost from the avoidable cost under total discontinuance yielded train and engine crew savings under reduced service.

Mr. J.E. Mahoney of the Tri-State Transportation Commission checked the railroad estimate by comparison with constructed payroll figures. In total Mr. Mahoney's figures varied from the Railroad's by only 1.5 percent.

##### Switching

The Railroad's savings in switching service under partial discontinuance assume elimination of one trick five days per week. Included in their figures are crew costs (engineer, yard

conductor, and brakeman) and fuel costs. Our check of Railroad work papers showed that both crew personnel and fuel savings have been costed out on a basis consistent with that used in the total discontinuance proceedings.

#### Power

The Railroad developed power cost savings under partial discontinuance by applying the secondary or energy only electrical charge to eliminated MU car miles. Since most MU service reductions are during the off-peak, using the energy rather than demand charge seems reasonable. Our calculation of reduction in MU car miles agreed with the Railroad's. Therefore the Railroad's savings here seem reasonable and consistent.

#### Fuel

The Railroad developed fuel savings by applying the same fuel cost per mile as used under total discontinuance to eliminated locomotive unit miles. Our estimate of eliminated locomotive unit miles corresponded quite closely with the Railroad's. Hence, we accept their fuel savings.

#### Towermen

The Railroad identified avoidable towermen assignments under partial discontinuance at Montclair Tower, Roseville Tower, South Orange Tower, and the Terminal Tower. These assignments were costed out on a basis consistent with that used under total discontinuance.

In addition to these towermen eliminated, we have identified other signal and interlocker operators associated with line

segments where service will be eliminated under partial discontinuance as described earlier in this chapter.

Consequently the savings in the Signal and Interlocker Account are comprised of savings identified by the Railroad plus additional savings identified by us.

OTHER  
SAVINGS

Savings in other accounts within the transportation area were determined as follows:

(371) Superintendence: Wyer determined avoidable positions under total discontinuance. We examined these positions and concluded that, although some reductions might be achieved under partial discontinuance, we could claim no savings without a more detailed analysis.

(372) Dispatching Trains: Wyer analyzed dispatching forces to determine positions and rates of pay eliminated. Under a brief analysis for partial discontinuance we found no avoidable people.

(376) Station Supplies and Expenses: Under total discontinuance, Wyer calculated savings in this account as 15.883 percent of Account 373. This same procedure was followed under partial discontinuance to arrive at savings of \$11,437.

(409) Employee Health and Welfare: Under total discontinuance, Wyer calculated savings in this account as 4.085 percent of the labor portion of transportation expenses. This same procedure was followed under partial discontinuance to arrive at savings of \$64,815.



(410) Stationery and Printing: Under total discontinuance, Wyer calculated savings in this account as 0.402 percent of Accounts 372-408 inclusive (excluding pier rental). This same procedure was followed under partial discontinuance to arrive at savings of \$7,063.

(414) Insurance: Under total discontinuance, Wyer claimed the annual premium for public liability insurance. We claimed no savings here under partial, although the premium might be reduced with reduced service.

(420) Injuries to Persons: Under total discontinuance, Wyer calculated savings in this account as 1.732 percent of direct costs in Accounts 372-408 (excluding pier rental). This same procedure was followed under partial discontinuance to arrive at savings of \$30,432. This recognizes a reduction in passenger and employee exposure to injuries.

SUMMARY SAVINGS  
BY ICC ACCOUNT

Transportation savings by account under partial discontinuance are shown, along with savings claimed by Erie Lackawanna under total discontinuance in Exhibit IV-1.

In total our estimate of savings in this area is \$1,859,379 — some \$265,174 or 17 percent greater than the Railroad's partial discontinuance figure.

Transportation Rail Line Savings - 1965

ICC Acct # (1)	Savings Area (2)	Wyer Estimate of Savings under Total Discontinuance 1/ (3)	LEP&A Estimate of Savings under Partial Discontinuance (4)
371	Superintendence	\$ 119,812	\$ 0
372	Dispatching Trains	92,658	0
373	Station Employees	497,105	72,007
373	Hcboken Station Forces	387,748	
373	Ferry Shore Personnel	-	-
376	Station Supplies and Expenses	140,544	11,437
376	Pier Rental	-	-
377	Yardmasters and Yard Clerks	73,381	0
378	Yard Conductors and Brakemen	329,714	- (included in
379	Yard Switch and Signal Tenders	36,709	0 Yard Enginemen)
380	Yard Enginemen	101,091	31,455
382	Yard Switching Fuel	8,256	1,237
385	Water for Yard Locomotives )		
386	Lubricants for Yard Locomotives )		
387	Other Supplies for Yard Locomotives )	Included in Maintenance of Equipment	
388	Enginehouse Expenses, Yard )		
389	Yard Supplies and Expenses	4,591	-
392	Train Enginemen	1,284,031	534,776
394	Train Fuel	185,888	100,572
395-396	Train Power Purchased and Produced	582,348	75,687
397	Water for Train Locomotives )		
398	Lubricants for Train Locomotives )		
399	Other Supplies for Train Locomotives )	Included in Maintenance of Equipment	
400	Enginehouse Expenses, Train )		
401	Trainmen	2,014,280	714,810
402	Train Supplies and Expenses )	Included in Maintenance of Equipment	
404	Signal and Interlocker Operation	457,359	111,694
405	Crossing Protection	123,044	89,766
406	Drawbridge Operation	48,891	13,628

Transportation Rail Line Savings - 1965

ICC Acct #	Savings Area	Wyer Estimate of Savings under Total Discontinuance <u>1/</u>	LEP&A Estimate of Savings under Partial Discontinuance
(1)	(2)	(3)	(4)
408	Operating Floating Equipment	\$ -	\$ -
409	Employee Health and Welfare	229,193	64,815
410	Stationery and Printing	25,597	7,063
414	Insurance	73,522	0
420	Injuries to Persons	<u>110,287</u>	<u>30,432</u>
	Total Transportation Rail Line	<u>\$6,926,049</u>	<u>\$1,859,379</u>

1/ Excludes Ferry Operations.



## V - SAVINGS IN OTHER COST AREAS

Cost areas not covered in earlier chapters are:

- Traffic
- General
- Miscellaneous
- Property Taxes
- Payroll Taxes
- Passenger Car Rents
- Miscellaneous Rent Income
- Return on Net Cash

Under partial discontinuance, Wyer and the Railroad showed savings in none of these areas except payroll taxes. Savings from return on net cash were not allowed by the PUC decision. The remaining cost categories were handled as described below.

### TRAFFIC

The only savings we identified here under partial discontinuance were \$370 in expenses incurred for printing timetables for Northern Branch Service.

### GENERAL

Savings under total discontinuance in this category were from avoidable personnel charged to general office accounts. We identified no savings under partial discontinuance.

### MISCELLANEOUS: BRANCH LINE ABANDONMENT SAVINGS

Savings from line segments where passenger service would be eliminated under partial discontinuance were claimed in the Maintenance of Way and Structures and Transportation Accounts. Therefore, we also estimated the portion of offsetting credits shown here under total discontinuance which would likewise be incurred under partial discontinuance. These amounted to \$39,432.

PROPERTY TAXES

Using the same procedure as followed in Maintenance of Way and Structures and Transportation Accounts, we identified those property taxes claimed under total discontinuance which were related to line segments where service would be eliminated under the PUC order. They amounted to \$8,305.

PAYROLL TAXES

Payroll taxes were calculated as 7.631 percent of the labor portion of Maintenance of Way, Maintenance of Equipment, and Transportation Expenses. They amounted to \$165,332.

PASSENGER  
CAR RENTS

We assumed all these rents would be retained under curtailed service and showed no savings.

MISCELLANEOUS  
RENT INCOME

We assumed no losses of income in this area.

VI - REVENUE LOSS

Revenue loss under total discontinuance was estimated by the Railroad to be \$9,388,241. Under partial discontinuance they have assumed a loss of only \$576,142. This loss results from revenue reductions by branches as follows.

Table 1: Railroad Estimate of Revenue  
Loss by Branches

Branch (1)	Net Loss (2)
1. Northern	\$ 96,360
2. Main Line	146,000
3. Bergen County	14,998
4. Newark	68,816
5. Carlton Hill	6,350
6. Greenwood Lake	54,666
7. Caldwell	10,414
8. Boonton	52,875
9. Morris and Essex	5,000
10. Montclair	120,663
11. Total	<u>\$ 576,142</u>

RAILROAD REVENUES APPROACH  
AND ASSUMPTIONS BY BRANCH

To determine revenue loss, the Railroad examined service to be discontinued by train and station within each branch. Referring to the same passenger on-and-off counts\* as were used in the total discontinuance case, they estimated passengers to be lost by train by station. Then, based on average fare per rider from relevant groups of stations, the Railroad calculated revenue loss

---

\* - Wednesday October 13, 1965  
 Saturday October 9, 1965  
 Sunday October 10, 1965



Underlying assumptions used by the Railroad in estimating loss for each branch were as follows:

Northern Branch: Service on this branch will be totally discontinued. The Railroad has assumed all revenue will be lost.

Main Line: Weekly service on this branch will be reduced by 57.6 percent. The Railroad has assumed substantially all riders will be lost on trains to be eliminated. The Railroad has further assumed a 20 percent deadhead factor\* for these trains.

Bergen County Branch: Weekly service on this branch will be reduced by 26.0 percent. Basically, the Railroad has assumed that all riders on-or-off at stations in the Bergen County segment (line segments 7 and 8) of this branch will be lost. The Railroad has also assumed a 10 percent deadhead factor for these riders.

Newark Branch: Service on this branch will be totally discontinued. The Railroad has assumed that substantially all passengers will be lost. A token \$2,500 retention of passenger revenues has been assumed with the balance, \$68,816 (\$71,316 - \$2,500) being charged as lost revenue.

Carlton Hill Branch: Service on this branch will be totally discontinued. The Railroad has assumed that 75 percent of the Carlton Hill riders will be retained and will board or disembark from Erie Lackawanna trains at other stations (principally Rutherford). All mainline passengers presently riding these trains are assumed to be retained.

---

\*The Railroad has computed revenue losses by applying appropriate fares to estimated ridership losses. As the passenger count includes deadheads (non-fare passengers), revenue figures had to be adjusted for the percentage of non-revenue or deadhead passengers.

Greenwood Lake Branch: Service on this branch will be discontinued beyond Mountain View to Midvale. Weekly service over the shortened run will be reduced by 45.4 percent. The Railroad has assumed approximately half of the riders beyond Mountain View would be retained. All mainline passengers would be retained. The Railroad used a 10 percent deadhead ratio for riders on this branch.

Caldwell Branch: Service on this branch will be totally discontinued. The Railroad has assumed that all riders will travel to Montclair to board the train. There will be some revenue loss as a result of the lower fares to Montclair (\$ .15 less per rider).

Boonton Branch: Weekly service on this branch will be reduced by 47.3 percent. The Railroad has assumed that substantially all passengers beyond Netcong and between Dover and Mountain View will be lost. A 10 percent deadhead ratio was used.

Morris and Essex Branch (including Gladstone Branch): Weekly service on this branch will be reduced 27.3 percent overall, with a 12 percent reduction occurring at the weekday morning and evening peak. Erie Lackawanna has assumed that the passenger loss will be little, if any. They have assumed a minimal loss of \$5,000 per annum on late evening trains.

Montclair Branch: Weekly service on this branch will be reduced 85.5 percent. The Railroad has assumed that all passengers will be lost except those on remaining trains and those now riding trains in the peak periods immediately adjacent to trains to remain.

ANALYSIS OF RAILROAD  
REVENUE RESULTS

Revenue results shown by the Railroad, both by branch and overall seem quite conservative. However, estimation of ridership and revenue changes is highly judgmental and dependent upon intimate experience with the structure of the particular system in question. Further, estimates in the ridership and revenue area are difficult to test for reasonability in the absence of comparative data or other external measures.

Two assumptions used by the Railroad are questionable however.

- (1) The high deadhead percentage used on the Main Line.
- (2) The low revenue loss on the Morris and Essex Branch.

These were tested against other available data.

Main Line  
Deadhead Percentage

We examined on-and-off check sheets employed by Wyer, Dick and the Railroad to develop passenger and revenue losses under total discontinuance. These sheets show total pass riders on each train, as well as passengers on-and-off by train by station. From these sheets we developed deadhead passengers for the main line as follows:

Table 2: Deadhead Percentage, Main Line  
(Based on Wednesday, October 13,  
1965, on-and-off check)

	<u>Eastbound</u> (1)	<u>Westbound</u> (2)	<u>Total</u> (3)
Weekday Peak	6.57 %	5.47 %	6.11 %
Weekday off Peak	13.18	8.66	10.62
Total	9.07 %	7.15 %	8.14 %



From these percentage figures, an overall deadhead ratio on Main Line trains of 10 percent seems much more reasonable than the 20 percent used by the Railroad. Applying this percent to the gross Main Line revenue loss under partial discontinuance results in a new net loss of \$163,845 (\$182,050 less ten percent or \$18,205).

Morris and Essex  
Revenue Loss

Based on their knowledge of ridership patterns and trends in the state, the Division of Railroad Transportation of the State Highway Department estimated that the revenue loss on this branch under partial discontinuance would be \$140,000 rather than \$5,000 as estimated by Erie Lackawanna.

Under total discontinuance, Erie Lackawanna had estimated losses on this branch at \$6,030,907 - the largest loss for any branch in the suburban area.

Exhibit VI-1, included at the end of this chapter, describes the reasoning used by the State of New Jersey in arriving at partial discontinuance losses of \$140,000 on the Morris and Essex Branch.

The revised revenue figures for partial discontinuance are compared with the Railroad figures in Table 3 below.

Table 3: Comparison of Revised Estimate vs Railroad  
Estimate of Revenue Loss under Partial  
Suburban Passenger Service Discontinuance

<u>Branch</u> (1)	<u>Railroad Loss Estimate</u> (2)	<u>Revised Loss Estimate</u> (3)	<u>Revised Over/Under Railroad</u> (4)
1. Northern	\$ 96,360	\$ 96,360	\$ 0
2. Main Line	146,000	163,845	17,845
3. Bergen County	14,998	14,998	0
4. Newark	68,816	68,816	0
5. Carlton Hill	6,350	6,350	0
6. Greenwood Lake	54,666	54,666	0
7. Caldwell	10,414	10,414	0
8. Boonton	52,875	52,875	0
9. Morris and Essex	5,000	140,000	135,000
10. Montclair	<u>120,663</u>	<u>120,663</u>	<u>0</u>
11. Total	<u>\$576,142</u>	<u>\$728,987</u>	<u>\$152,845</u>

-----

In total the revised revenue loss exceeds the Railroad estimate by \$152,845 and thus decreases partial discontinuance savings by this amount.

DEVELOPMENT OF MORRIS & ESSEX BRANCH  
REVENUE LOSS UNDER PARTIAL DISCONTINUANCE

Largely based on the advice of the Passenger Traffic Manager of the Erie Lackawanna, Wyer, Dick & Company estimated revenue losses on the various branches if the service reductions authorized by the Public Utility Commission were made effective. These projections were made by applying average fares to the number of passengers on the trains to be eliminated as compiled in October 1965, except that judgments were made in a number of instances that not all of these passengers would be lost to the railroad because of convenient alternate rail service or conversely a lack of adequate alternative bus service. Adjustments were also made for the estimated number of free passengers on these trains.

With the shortage of specific data as to the travel habits of the passengers involved, it would be somewhat presumptuous to question the judgment of a man who has had many years of experience in the passenger traffic field and who is intimately familiar with the transportation facilities of the Erie Lackawanna suburban area. For that reason, although there are numerous reservations about the basis for the figures, the revenue loss estimates for all but the Morris & Essex line were generally accepted.

Wyer, Dick & Company has estimated an annual revenue loss on the Morris & Essex of \$5,000 from the elimination of late evening trains. Although a total of 41 weekday, 6 Saturday and 11 Sunday trains are to be eliminated neither the railroad nor its consultant believe that any other passengers will be lost. This opinion has been stated as being based on two factors:

- (1) The remaining train service is frequent and convenient enough and the travel patterns of the passengers affected are sufficiently flexible so that they can adjust to the curtailed service.
- (2) The territory served by the M & E has no alternate bus service which would attract any of these passengers.

The position that no passengers would be lost from virtually all of the M & E trains to be discontinued is so extreme as to require analysis of the factors upon which it was based. First, the contention that the remaining service is frequent enough to retain all present passengers is open to considerable question. The widening of the gap between off-peak trains from 30 minutes to an hour and in one case an hour and a half is certainly a deterioration in service which is not conducive to retaining patronage.



As for flexibility in travel patterns, there is no reason to believe that passengers on the M & E are different than those on the Chestnut Hill Branch of the Pennsylvania in Philadelphia where a reduction this summer from half-hourly to hourly service in off-peak hours resulted in a decrease of about 25% in patronage. In another case the midday service of the Susquehanna Railroad was reduced from 11 to 5 in 1958. Passenger volume decreased 67% or about the same ratio as the number of the trains. Then too, we can find instances in the Boston and Philadelphia areas where an increase in off-peak service resulted in substantial patronage gains. A logical inference to be drawn from these experiences is that when service decreases patronage also falls.

Still it can be argued that patronage dropped in other localities because there was convenient alternate public transportation available. The position of the Erie Lackawanna is that passengers from the Morris & Essex area have no choice but to use the train. Setting aside the possibilities of passengers using their automobiles or even not making a trip, the alternate bus service from the stations affected should be examined.

### Morristown

DeCamp Bus Company operates route 77 from Morristown, to New York. The running time is 80 minutes to New York, or about the same as Erie Lackawanna and PATH to midtown Manhattan. For downtown New York passengers the railroad has about a 10 minute advantage. For off-peak riders who can use the shoppers ticket the railroad has a 40¢ price advantage for the round trip, but for other occasional passengers to New York the bus is 45¢ cheaper per trip. Bus passengers, of course, enjoy a through trip compared with the change at Hoboken required of rail riders. Buses run hourly with departures from Morristown at 35 minutes after the hour arriving in New York at 55 minutes after the hour, compared with rail schedules 14 minutes after the hour at Morristown and arriving midtown Manhattan approximately 30 minutes after the hour.

DeCamp also operates route 146 from Morristown to Newark. Running time is 66 minutes vs. 44 for the train although bus delivery is to downtown Newark. Departures from Morristown are 30 minutes after the hour every hour during midday.

While off-peak bus service from Morristown has no particular superiority over the contemplated rail service, neither is it distinctly inferior. The choice of either mode would appear to depend on factors which are not known, such as convenience to origin or destination personal preference, etc. Nevertheless, the halving of rail service takes away the pronounced frequency



edge which it now enjoys and must certainly be reflected in usage. In addition, bus schedules provide departures and arrivals at times different than the proposed train schedules so that passengers have flexibility in choosing a mode of travel.

#### Convent, Madison, Chatham, Summit

These communities are served only by Public Service on a local route to Newark. Because of the running time of these buses (70 minutes from Madison vs. 38 for rail) diversion of rail passengers from a reduced service would be minimal.

#### Short Hills, Millburn, Maplewood

These stations are likewise served by the Public Service local route to Newark. However, route 70 buses connect at Irvington Center with express route 107 buses to New York. Since Maplewood, for example, is only 13 minutes from Irvington Center and the run from there to New York is 40 minutes (or 35 minutes on a Garden State Parkway express) the overall elapsed time compares favorably with train service. More importantly, route 70 buses run every 15 minutes and 107 buses every 5 or 10 minutes in midday and this frequency is an important diversionary factor. Fares are lower (bus \$1.40 vs. rail \$1.92, Maplewood-New York).

Bus travel times from the other stations are somewhat less advantageous than rail to New York.

In addition, Public Service operates route 31 from Maplewood to Newark which although 15 minutes slower is more than twice as frequent as the proposed rail schedules.

#### South Orange, Mountain Station

Public Service route 31 also provides good service to Newark, some 9 minutes slower than the train. However, it must be remembered that the bus line delivers passengers to downtown Newark whereas the Erie Lackawanna station is a considerable distance from the principal shopping area of the city.

#### Highland Avenue, Orange, Brick Church

DeCamp route 88 is competitive with Erie Lackawanna service from these stations to New York both from a time and fare standpoint. Public Service route 21 offers very frequent service to Newark (Pennsylvania Station where PATH connection is available to downtown Manhattan) from Orange and Brick Church and is competitive with train service to center city Newark. Other bus services to Newark include Public Service route 24 from Orange and Brick

Church and is competitive with train service to center city Newark. Other bus services to Newark include Public Service route 24 from Crange and Public Service route 44 from Highland Station. All are more frequent than train service and provide about the same travel time to the central area.

#### East Orange, Grove Street, Roseville Avenue

Public Service route 21 also offers very frequent service from these areas to Newark and to New York by connection at Penn Station. Route 44 is also convenient to this area, while DeCamp route 77 provides good service to New York.

#### PASSENGER DIVERSION

Under a reduced train service, M & E passengers would have four choices:

- (1) Continue to use the trains
- (2) Use bus service
- (3) Use automobile
- (4) Not make the trip

Since individual needs and preferences are involved, there is a problem in assigning present volumes to the various choices. Therefore, it has been necessary to make certain arbitrary assumptions for the purpose of this estimate. First, that if the remaining service offered a train within 10 minutes of the time of the present train, no diversion was assumed. Second, regardless of the train service the overwhelming majority must make the trip and further that they prefer public transportation. Because of the latter two assumptions, the loss of rail passengers to choices 3 and 4 has been limited to 10%.

Before proceeding further, two factors must be considered - quality of competitive bus service and time differential between present and proposed train schedules. In other words, as the amount of time by which a passenger must adjust his travel plans increases the more attractive the bus becomes although this is a variable dependent upon bus running times, frequencies, fares, etc.

This estimate was based on a geometric increase in the diversion because of time, then modified in accordance with the quality of bus service. The following table will illustrate the process:

		<u>Percentage of Diversion</u>			
Bus Service	--	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
<u>Time Factor</u>					
0 - 10 Minutes		0	0	0	0
11 - 15 Minutes		10	5	5	0
16 - 20 Minutes		20	10	5	5
21 - 25 Minutes		40	20	10	5
26 - 30 Minutes		60	40	20	10
31 - 35 Minutes		70	60	30	10
36 - 40 Minutes		75	65	35	15
41 - 45 Minutes		75	70	35	15
46 - 50 Minutes		75	65	40	15
51 - 55 Minutes		75	65	40	20
56 - 60 Minutes		75	65	40	20

As a practical matter there is a hard core of rail riders who would use only trains no matter how poor the service became and this fact has been reflected in the virtually static percentages after a certain point.

Also, based on the foregoing analysis of bus service a rating was given to its quality from each community as follows:

I	II	III	IV
<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Maplewood	Short Hills Millburn Highland Ave. Orange Brick Church East Orange	Morristown S. Orange Mountain Ave. Grove St. Roseville Ave.	Convent Madison Chatham Summit

These ratings are admittedly generalized but an attempt was made to balance the quality of the New York and Newark services.

Application of this formula then followed. First, trains which were to be discontinued were listed and those where passengers would have 10 minutes or less change in their travel pattern were eliminated. The number of passengers using the trains remaining on the list was totaled for each station. The stations were grouped as to the quality of bus service and diversion of passengers calculated by use of the preceding scale of percentages. For example, the next nearest time for the 30 passengers from Maplewood now using train 526 will be 25 minutes earlier. Since Maplewood has excellent bus



service, this amount of change in train time has been calculated to produce 40% diversion, or 12 passengers. The following table summarizes this process for all stations and trains:

<u>Group I</u>	<u>Total Passengers</u>	<u>Estimated Diversion</u>	<u>Non-Revenue Passengers</u>	<u>Net Diversion</u>
Maplewood	200	102	10	92
<u>Group II</u>				
Short Hills	296	101	10	91
Millburn	292	102	10	92
Highland Ave.	137	55	6	49
Orange	137	48	5	43
Brick Church	213	75	8	67
East Orange	137	49	5	44
<u>Group III</u>				
Morristown	245	56	6	50
S. Orange	395	88	9	79
Mountain Sta.	87	20	2	18
Grove Street	34	9	1	8
Roseville Ave.	39	10	1	9
<u>Group IV</u>				
Convent	216	17	2	15
Madison	228	32	3	29
Chatham	176	12	1	11
Summit	544	75	8	67

The next step is to convert these diverted passengers into the amount of revenue which the railroad will lose. Lacking from-and-to data, the low rated 1-day round trip fare to Hoboken has been used as a basis in this computation. This results in understatement of revenues, to the extent that one-way, 30 day round trip weekly commutation and 10-trip tickets are presented, also insofar as use of the railroad ferry is involved, but as a balancing factor there is no consideration of intermediate travel. It will also be noted in this analysis that passengers originating or terminating at Harrison, Newark and stations west of Morristown have been excluded either because of the small numbers involved or because service was not seriously reduced.



	<u>Passenger Trips Diverted</u>	<u>Half 1-Day Fare</u>	<u>Daily Revenue</u>	<u>Yearly Revenue</u>
Maplewood	92	\$.66	\$ 60.72	\$ 15,422.88
Short Hills	91	.75	68.25	17,335.50
Millburn	92	.66	60.72	15,422.88
Highland Ave.	49	.55	26.95	6,845.30
Orange	43	.55	23.65	6,007.10
Brick Church	67	.45	30.15	7,658.10
East Orange	44	.45	19.80	5,029.20
Morristown	50	1.10	55.00	13,970.00
S. Orange	79	.58	45.82	11,638.28
Mountain Sta.	18	.58	10.44	2,651.76
Grove Street	8	.45	3.60	914.40
Roseville Ave.	9	.43	3.87	982.98
Convent	15	1.02	15.30	3,886.20
Madison	29	.94	27.26	6,924.04
Chatham	11	.86	9.46	2,402.84
Summit	67	.80	53.60	13,614.40
	764		\$514.59	\$130,705.86

The above estimate is only for weekday travel. Carrying this same process to Saturdays and Sundays, the following passenger and revenue diversion is estimated:

<u>Saturday</u>				<u>Sunday</u>			
	<u>Pass.</u>	<u>Rev.</u>	<u>Annual Revenue</u>		<u>Daily Pass.</u>	<u>Rev.</u>	<u>Annual Revenue</u>
Maplewood	17	\$11.22	\$ 583.44	12	\$ 7.92	\$ 467.28	
Short Hills	13	9.75	507.00	12	9.00	531.00	
Millburn	19	12.54	652.08	18	11.88	700.92	
Highland Ave.	9	2.25	117.00	4	2.20	129.80	
Orange	14	7.70	400.40	13	7.15	421.85	
Brick Church	13	5.85	304.20	14	6.30	371.70	
East Orange	8	3.60	187.20	8	3.60	212.40	
Morristown	13	14.30	743.60	22	24.20	1,427.80	
S. Orange	7	4.06	211.12	8	4.64	273.76	
Mountain Sta.	5	2.90	150.80	4	2.32	136.88	
Grove Street	3	1.35	70.20	4	1.80	106.20	
Roseville Ave.	3	1.29	67.08	3	1.29	76.11	
Convent	5	5.10	265.20	1	1.02	60.18	
Madison	10	9.40	488.80	7	6.58	388.22	
Chatham	8	6.88	357.76	4	3.44	202.96	
Summit	24	19.20	998.40	14	11.20	660.80	
	171	\$117.39	\$6,104.28	148	\$104.54	\$6,167.86	

Combining the above calculations, annual revenue diversion from curtailing service on the Morris & Essex Division is estimated as follows:

Weekday	\$130,706
Saturday	6,104
Sunday	<u>6,168</u>
	\$142,978

For the purpose of this analysis the revenue diversion can be anticipated as \$140,000.

#### RETENTION OF SERVICE

The above analysis has developed that virtually all of the diversion will occur from 14 eastbound trains and 17 westbound trains weekdays. All of these operate outside the hours in which the predominance of passengers travel in the respective directions. It has been shown that a revenue diversion of \$515 per day can be expected from eliminating these 31 trains. A study of the crew assignments under the curtailed service shows that personnel will be underutilized to a considerable extent. In fact, as many as 14 Hoboken-Morristown weekday round trips might be operated with no additional train crew expense and engine crew costs of only about \$120 a day. Even with other minor incremental costs it is clear that service can be retained on the M & E which will benefit the Erie Lackawanna on an out-of-pocket cash basis.

## VII - ADDED SERVICE OPPORTUNITIES

Partial discontinuance of Erie Lackawanna suburban passenger train service authorized by the PUC will reduce the number of revenue trains operated by 46.8 percent, as discussed in earlier chapters of this report. All branches will be affected by the order, with service being eliminated on some branches and reduced on the balance of the branches.

In allowing partial service discontinuance, the PUC recognized that "demand is not equal for each of the Railroad's branches or lines." Considering the "need for preserving service to the greater number of riders", they "weighed the relative need for service against its cost." In other words, the PUC attempted to maximize the reduction in costs while at the same time preserving as much service and revenue as possible.

### OPPORTUNITIES TO PRESERVE SERVICE AND REVENUES

Our examination of reduced service schedules proposed by Erie Lackawanna reveals opportunities to retain additional service and revenues without incurring costs in excess of these revenues. In fact, by greater utilization of remaining trains and engine crews and by examination of revenue potential of specific discontinued runs, the Railroad can provide more service than its proposed schedules contemplate and do it at an incremental net profit.

This opportunity exists as a consequence of:



1. The availability of present crews during off-peak hours at minimal additional cost, and
2. The potential to reschedule proposed deadhead runs as revenue service trains.

By taking advantage of this opportunity, Erie Lackawanna can add 26 trains to its proposed service schedule and simultaneously realize an incremental profit of \$103,000. Financially, this means that the passenger service savings under partial discontinuance increased from \$2.2 million to \$2.3 million.

The balance of this chapter discusses how this may be achieved.

#### UTILIZING AVAIL- ABLE CREW TIME

Examination of proposed crew assignments indicates that some crews are under utilized, that is, they are now running less than their guaranteed daily mileage and they have time available during off-peak periods to run additional trips without working additional overtime hours.

Based on a crew assignment analysis by Mr. John E. Mahoney of the Tri-State Transportation Commission, DP coach crews on the Main Line and MU crews on the Morris and Essex Branch have available off-peak time to run additional trips. Given the proposed assignments, an additional round trip on the Main Line between Hoboken and Suffern would increase estimated annual crew costs by only \$1,310 to \$3,120, depending on the particular crew assignment(s) involved. Nine Main Line crew assignments have time available for additional trips. On the Morris and Essex Branch,

where eight crew assignments are available for added trips, the estimated increase in annual crew costs for round trips to Montclair ranges from \$0 to \$686.

These costs result primarily from added pay to enginemen, whose standard daily mileage is 100 miles. Owing to the shortness of the runs involved, trainmen, with a 150 mile standard day, are little affected. The costs shown above include a 20 percent allowance for fringe benefits.

Restored  
Trains

Opportunities to preserve service at no net cost are greatest where the present ridership is greatest. Matching up pre-PUC order ridership on discontinued off-peak trains with available time from proposed crew assignments, we identified one additional round trip by each of five Main Line crews and each of seven Morris and Essex crews. These trips are between Suffern and Hoboken and Montclair and Hoboken, respectively. They retain 499 daily passengers otherwise lost on the Main Line and 447 on the Montclair Branch, as shown in Table 1 below.

Table 1 - Passengers on Selected  
Discontinued Off-Peak Trains

Main Line		Montclair Branch	
Train No. (1)	No. Passengers (2)	Train No. (3)	No. Passengers (4)
<u>Eastbound:</u>			
1162	86	132	80
1164	88	136	38
1166	50	140	30
1168	36 <u>1/</u>	150	24
		158	27
		160	51
		162	<u>31</u>
Total	<u>260</u>		<u>281</u>
<u>Westbound:</u>			
1157	97	117	33
1159	43	119	19
1163	99	123	11
		131	17
		143	28
		145	27
		147	<u>31</u>
Total	<u>239</u>		<u>166</u>
Total, both directions		<u>499</u>	<u>447</u>

Source: October 13, 1965 on-and-off checks.

1/ Represents 50% of the passengers on this train. In its revenue estimate, Erie Lackawanna assumed that the balance would be retained on a proposed train.

-----

All the above trains can be operated without altering the relevant crews' other runs. Our analysis of available crews made no changes in the proposed schedules. Further opportunities to better utilize available crew time exist if the proposed schedules are modified slightly, a step we did not take.



Impact on  
Net Revenues

To determine the financial impact of restoring these trains, we calculated added revenues and costs. Revenues produced by passengers on these trains were estimated based on the same revenue per passenger figures as used by Erie Lackawanna in determining avoidable revenues under partial discontinuance (\$ .70 per passenger on Suffern trains on the Main Line and \$ .55 per passenger on the Montclair Branch).

Train running costs include:

1. Additional crew costs
2. Fuel or power costs
3. Locomotive repairs and servicing
4. Coach repairs and servicing

Applying the same unit costs as those used in determining savings from partial discontinuance,\* we calculated added costs. A two-car train consist was assumed.

The resulting revenues, expenses, and net revenues are shown in Table 2.

Table 2 - Impact of Additional  
Service on Net Revenues

<u>Added Service</u> (1)	<u>Associated Revenues</u> (2)	<u>Associated Expenses</u> (3)	<u>Net Revenues</u> (4)
1. Main Line: (Hoboken-Suffern)	\$ 88,722	\$ 66,133	\$ 22,589
2. Montclair Branch: (Hoboken-Montclair)	<u>62,447</u>	<u>12,803</u>	<u>49,644</u>
3. Total	<u>\$151,169</u>	<u>\$ 78,936</u>	<u>\$ 72,233</u>

\*For locomotives, expenses were not completely developed as some Wyer figures were used. In this instance, unit costs were developed from the Erie Lackawanna Diesel Report, 1965.

Gross revenues from these restored trains should be \$151,169 which, when offset by expenses of \$78,936, leave net revenue of \$72,233. In other words, when more efficient use is made of proposed crews, more service can be provided and more net revenue can be generated.

#### UTILIZING DEADHEAD MOVES

Proposed deadhead moves present a further opportunity to provide service and retain revenues without increasing costs. By switching certain trains from non-revenue to revenue service, Erie Lackawanna can generate passenger revenues with no increase in costs, as the equipment must be cycled to meet peak hour demands.

Specifically, at least five proposed deadhead trains on the Montclair Branch operate at times when passengers would ride them if they were in revenue service. For example, train X-1 is proposed to run as a deadhead leaving Hoboken at 6:30 a.m. to Montclair, returning as train 100, leaving Montclair at 7:00 a.m. Under present service, there is a scheduled train (#107) leaving Hoboken for Montclair at 6:30 which, based on the October 13, 1965 on-and-off count, carries 36 passengers. By leaving approximately five minutes earlier to allow for stops which would be made in revenue service but not in non-revenue service, X-1 could become a 6:25 revenue train and quite likely pick up all 36 passengers now handled by #107.



Estimation of  
Revenues

To estimate the potential for producing revenue on proposed deadhead moves, the following procedure was used:

1. The proposed deadhead trains were identified.
2. For the crews making these moves, time requirements prior to and after the move were checked.
3. Referring to present timetables and the on-and-off counts, deadhead moves proposed for times near present revenue trains were identified.
4. Deadhead moves were converted to revenue runs by allowing for additional time based on the relationship of deadhead time versus revenue time - approximately five minutes.
5. Passengers on present trains arriving or departing Hoboken at the same time as the deadhead were used to develop additional revenues.
6. Equipment consists were checked to determine that enough seats would be provided for the involved passengers.
7. The impact on each deadhead's arrival or departure time was determined.

The estimated revenue potential of these changes is \$30,873 as shown in Table 3.

Table 3 - Additional Revenue Potential of Converting  
Deadhead Trains to Revenue Trains -  
Montclair Branch

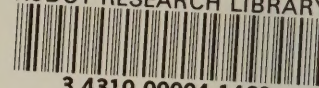
<u>Deadhead Train No.</u> (1)	<u>Revenue Train to Replace Deadhead</u> (2)	<u>Change in Deadhead Departure/ Arrival Time</u> (3)	<u>Daily Passengers (per on- and-off count)</u> (4)	<u>Annual Revenue Potential</u> (5)
Eastbound:				
1. X-2	164	5 min.	25	
2. X-4	166	13 min.	<u>57</u>	
3. Total			82	\$11,455
Westbound:				
4. X-1	107	5 min.	36	
5. X-3	111	5 min.	43	
6. X-5	113	11 min.	<u>60</u>	
7. Total			<u>139</u>	<u>\$19,418</u>
8. Total, both directions			<u>221</u>	<u>\$30,873</u>

In only one case do these changes affect proposed revenue service runs. In this instance a Montclair departure time will be seven minutes later.

Other Opportunities  
to Utilize Deadhead Trains

Although it is not possible to relate the revenue loss on the Morris and Essex Branch to individual trains, the State of New Jersey has estimated this loss at \$140,000. By using trains now scheduled as deadheads, it appears possible to reduce substantially this loss in revenues without incurring additional expense.





An example is Train X-30 which deadheads to Hoboken arriving at 5:25 p.m. Under present schedules, a train from South Orange carrying 138 passengers arrives at this time. The nearest proposed arrivals are 5:11 p.m. and 6:11 p.m., at least 14 minutes from the time of the proposed deadhead.

As a further example, deadhead trains X-31 and X-33 leave Hoboken within 5 to 10 minutes of present trains handling 61 to 333 passengers, respectively.

#### SUMMARY

The combined impact of adding crew runs and converting dead-head trains to revenue service trains is shown in Table 4.

Table 4 - Estimated Increase in Service and Net Revenue Resulting from Revised Schedules

Item (1)	Increase		Total (4)
	Additional Service (2)	Use of Proposed Deadheads (3)	
<u>Train Service</u>			
1. Weekday trains(both directions)	21	5	26
2. Average Number of Passengers	946	221	1,167
<u>Revenue</u>			
3. Gross Revenue	\$151,169	\$ 30,873	\$182,042
4. Incremental Costs	78,936	0	78,936
5. Net Revenue	<u>\$ 72,233</u>	<u>\$ 30,873</u>	<u>\$103,106</u>

In addition to this \$103,106, other savings not quantified here should be realized on the Morris and Essex Branch as discussed above.